

ABSTRACT OF THE DISCLOSURE

A diamond high brightness ultraviolet ray emitting element employs the carrier high-density phase of a diamond as a light-emitting mechanism. It includes a diamond substrate, a first diamond layer formed on the diamond substrate, a second diamond layer formed on the first diamond layer and functioning as an emission layer, a third diamond layer formed on the second diamond layer, a first electrode formed on the first diamond layer, and a second electrode formed on the third diamond layer. The second diamond layer constitutes the carrier high-density phase formed by high-density excitation. The combination of the high-density excitation with the high-quality diamond can implement the device that has stable carrier high-density phase, and emission efficiency higher than a conventional device with low-density excitation.